

What is claimed is:

1. A method of converting an input alternating voltage into an output direct voltage using a large electrolytic condenser, the method comprising the steps of:
 - (a) determining whether the level of the input alternating voltage is equal to or greater than a first predetermined level;
 - (b) rectifying the input alternating voltage to produce the output direct voltage if the level of the input alternating voltage is equal to or greater than the first predetermined level;
 - (c) determining whether the level of the input alternating voltage is equal to or greater than a second predetermined level that is greater than the first predetermined level;
 - (d) stopping the rectification of the input alternating voltage if the level of the input alternating voltage is equal to or greater than the second predetermined level; and
 - (e) if said rectification is stopped, determining whether the provision of the input alternating voltage is stopped and then resumed and proceeding to step (a) if it is determined that the input alternating voltage has been stopped and then resumed.
2. The method of claim 1, wherein the input alternating voltage is a common alternating voltage.
3. The method of claim 1, further comprising the step of:
 - (f) determining whether the absolute value of the level of the input alternating voltage is smaller than or equal to a third predetermined level if it is determined that the absolute value of the level of the input alternating voltage is greater than or equal to the first predetermined level, wherein in step (b) if the absolute value of the level of the input alternating voltage is smaller than or equal to the third predetermined level, the input alternating voltage is rectified.
4. The method of claim 3, wherein the third predetermined level is smaller than the second predetermined level.
5. The method of claim 3, wherein the third predetermined level is the smallest value among the absolute values of the levels of the input alternating voltage.
6. An apparatus for converting an input alternating voltage into an output direct voltage using a large electrolytic condenser, the apparatus comprising:

a level detector adapted to detect the level of the input alternating voltage;
a selection signal producer adapted to produce a selection signal based on a control signal and the result of a comparison of the detected level of the input alternating voltage with a first predetermined level;
a direct voltage producer adapted to rectify the input alternating voltage and output the result of the rectification as the output direct voltage;
a voltage transmitter adapted to transmit the input alternating voltage to the direct voltage producer in response to the selection signal; and
a controller adapted to produce the control signal from the result of a comparison of the detected level of the input alternating voltage with a second predetermined level greater than the first predetermined level and the result of a determination whether the provision of the input alternating voltage is stopped and then resumed.

7. The apparatus of claim 6, wherein the selection signal producer is adapted to produce the selection signal from the control signal, the result of the comparison of the detected level of the input alternating voltage with the first predetermined level, and the result of a comparison of the absolute value of the detected level of the input alternating voltage with a third predetermined level, wherein the third predetermined level is smaller than the second predetermined level.

8. The apparatus of claim 7, wherein the third predetermined level is the smallest value among the absolute values of the levels of the input alternating voltage.

9. The apparatus of claim 6, wherein the level detector comprises:
a first rectifier adapted to rectify the input alternating voltage; and
a level controller adapted to control downward the level of the input alternating voltage rectified by the first rectifier and output the controlled level of the input alternating voltage as the detected level of the input alternating voltage.

10. The apparatus of claim 6, wherein the direct voltage producer comprises:
a second rectifier adapted to rectify the input alternating voltage; and
wherein the large electrolytic condenser is adapted to charge from the input alternating voltage rectified by the second rectifier and output the charged input alternating voltage as the output direct voltage.

11. The apparatus of claim 6, wherein the voltage transmitter comprises:
a triac having first and second main electrodes respectively connected to the input alternating voltage and the direct voltage producer, and a gate coupled to the selection signal;
a first resistor installed between the second main electrode and the gate of the triac; and
a first capacitor connected to the first register in parallel.

12. The apparatus of claim 6, wherein the controller comprises:
a silicon control rectifier having an anode and a cathode both connected between the detected level of the input alternating voltage and a reference voltage;
a second resistor coupled between a gate of the silicon control rectifier and the reference voltage;
a Zener diode having a reverse bias voltage of the second predetermined level, and a cathode connected to the detected level of the input alternating voltage;
a second capacitor coupled between an anode of the Zener diode and the reference voltage;
third and fourth resistors connected to each other in series between the detected level of the input alternating voltage and the reference voltage; and
a transistor having a base coupled between the third and fourth resistors and a collector and an emitter installed between the control signal and the reference voltage.

13. The apparatus of claim 7, wherein the selection signal producer comprises:
a fifth resistor, one end of which is coupled to the input alternating voltage;
a light emitter connected between the detected level of the input alternating voltage and the control signal, adapted to emit light; and
a light receiver connected between the other end of the fifth resistor and the selection signal, adapted to receive light.

14. The apparatus of claim 6, further comprising a fuse coupled between the input alternating voltage and the level detector.